Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1.   (Original) A system for data mining from one or more data sources comprising: a source of data comprising one or more domains of information;

an Object-Relationship Database comprising objects from the one or more domains of information; and

a knowledge discovery engine where relationships between two or more integrated objects are identified, retrieved, grouped, ranked, filtered and numerically evaluated.

2.   (Original) The system of claim 1, wherein the source is one or more databases containing textual information.

3.   (Original) The system of claim 1, wherein the source is one or more databases containing numerical information.

4.   (Original) The system of claim 1, wherein the relationships between the two or more objects are identified as direct or indirect.

5.   (Original) The system of claim 4, wherein the relationships between the two or more integrated objects are ranked based on the relative strength of the relationship between direct and indirect objects.

6.   (Original) The system of claim 1, wherein the relationships are set into categories selected from the group consisting of positive, negative, physical and logical associations.

7.   (Original) The system of claim 1, wherein the domains of information comprise parcels of data as information as text, symbol, numerals and combinations thereof.

8.   (Original) The system of claim 1, wherein the system is at least partially automated.

9.   (Original) The system of claim 1, wherein the knowledge discovery engine filters the

two or more integrated objects by lexical processing.

10. (Original) The system of claim 1, wherein the Object-Relationship Database (ORD) is created using a method comprising the steps of:

compiling one or more data source objects;

adding the synonyms of the data source objects; and

grouping the information in the one or more data source into an object-relationship database.

11. (Original) The system of claim 10, further comprising a database of lexical variants from a data source.

12. (Currently Amended) The system of claim 11, wherein the system further comprises a program for scanning the object-relationship database with the database of lexical variants to add synonyms. [[;]]

13. (Original) The system of claim 12, wherein the system comprises a program for checking the object-relationship database for errors.

14. (Original) The system of claim 10, wherein the ORD creation method further comprises the step of increasing processing efficiency by assigning each database object a unique numeric ID and storing adirectional relationships by lowest ID first.

15. (Original) The system of claim 1, wherein an object is retrieved from unstructured text, structured data, a list, a table, a phrase, a paragraph, an abstract, a program, a manual, a text book, a reference book, treatise, a lab notebook, a letter, a memo, an email, a table of contents, index, a magazine, an article, scientific literature, a patent, a patent application, an international application, a webpage, a spreadsheet, a URL, or relational database, and combinations thereof.

16. (Original) The system of claim 15, wherein the object is selected from the group consisting of from the group consisting of gene, protein, chemical compound, small molecule, drugs, diseases, clinical phenotype, and other identifiers selected from the group consisting of ChemID, MeSH, FDA, locuslink, GDB, HGNC, MeSH, Medline, Snowmed, and OMIM.

17. (Original) The system of claim 10, wherein the ORD creation method further

comprises the step of screening out common words.

18.   (Original) The system of claim 10, wherein the ORD further comprises the step of identifying capitalizations and patterns for words by accessing a word database.

19.   (Original) The system of claim 11, wherein the step of constructing lexical variants further comprises using a synonym database.

20.   (Original) The system of claim 10, wherein the step of constructing lexical variants further comprises using an acronym-resolving algorithm.

21.   (Original) The system of claim 1, further comprising a graphical user interface for displaying one or more objects.

22.   (Original) The system of claim 21, wherein the interface comprise a control element, which can be clicked to display the integrated object derived from the context of the source data.

23.   (Original) The system of claim 1, wherein a portion of the Object-Relationship Database is constructed using a method comprising the steps of:
        inputting a block of text from the source of data;
        extracting information from the source to create a record and
        creating one or more arrays to match words in the record against phrases in the object-relationship database.

24.   (Original) The system of claim 23, wherein the method further comprises resolving acronyms.

25.   (Original) The system of claim 23 or24, wherein the method further comprises parsing the record into sentences and parsing each sentence into words.

26.   (Original) The system of claim 23, wherein the information comprises title, abstract, date, and PMID fields.

27.   (Original) The system of claim 22, wherein the block of text is selected from the group consisting of a list, a table, a phrase, a paragraph, an abstract, a program, a manual, a text book, a

reference book, a lab notebook, a letter, a memo, an email, a table of contents, a magazine, an article, scientific literature, a patent, a patent application, an international application, a webpage, a spreadsheet, a URL, or relational database, and combinations thereof.

28.   (Original) The system of claim 27, wherein the block of text is selected from the Physician's Desk Reference.

29.   (Original) The system of claim 23, wherein the block of text is given a higher value if the source of the information is considered to have a higher impact than other like sources according to selected criteria for impact.

30.   (Original) A system for relating objects comprising:

an object-relationship database generated from a data source comprising one or more domains of information; and

a knowledge discovery engine that recognizes relationships between objects in a data source, wherein the knowledge discovery engine identifies a one or more cooccurrences of objects within the data source, and identifies implicit relationships between the objects.

31.   (Original) The system of claim 30, wherein the knowledge discovery engine generates a comprehensive network of relationships.

32.   (Original) The system of claim 31, wherein the knowledge discovery network generates a partial network of relationships.

33.   (Concurrently Amended) The system of claim 30, wherein the relationships ~~idenfied~~ identified are stored in a system database and the system further includes a query module that allows a user to access information about the implicit relationships.

34.   (Original) The system of claim 30, wherein the knowledge discovery engine evaluates relationships using one or more statistically bounded network models.

35-44. (Cancelled).

45.   (Currently Amended) The system of any of claims 1, or 30, ~~35, 38, 40 or 42~~, further comprising a scanning module comprising a scanner for scanning printed information and generating a data source from the printed information.

46.   (Currently Amended) The system of any of claims 1, or 30, ~~35, 38, 40 or 42~~, wherein

the system comprises a processor for executing the functions of the knowledge engine.

47.   (Original) The system of claim 46, further comprising a computer readable medium for storing the object-relationship database.

48.   (Original) The system of claim 47, further comprising a client/server architecture wherein at least two functions of the system are distributed in a server and at least one client computer connectable to the network.

49.   (Original) The system of claim 48, wherein the system comprises a program for accessing one or more data sources.

50.   (Original) The system of claim 48, wherein the object relationship database is dynamic, and adds new objects from the one or more data sources to the database.

51.   (Original) The system of claim 50, wherein the system recomputes an object network when new objects are added from the one or more data sources.

52.   (Original) The system of claim 51, wherein the system further comprises an engine for monitoring recomputation results; and wherein the system re-evaluates relationships between objects.

53.   (Original) The system of claim 48, wherein the database is downloadable to the at least one client computer.

54.   (Original) The system of claim 48, wherein the database (network) is stored in memory of the server computer and the at least one client can access the database by communicating with the server.

55.   (Currently Amended) The system of any of claims 1, or 30, ~~35, 38, 40 or 42~~, wherein the system further comprises a results and analysis database, wherein the results and analysis database comprises: information relating to a query regarding an object relationship and results of the query.

56.   (Original) The system of claim 55, wherein the results and analysis database further comprises a record of comprising information relating to an interpretation of the results.

57.   (Original) The system of claim 55, wherein the results and analysis database further comprises data validating the results.

58.   (Currently Amended) The system of any of claims 1, or 30, ~~35, 38, 40 or 42~~, wherein the system further comprises an application program for executing a computer code comprising

instructions for ranking relationships.

59.   (Currently Amended) The system of claim 58, wherein the computer code includes instructions for a system processor to generate a linear or nonlinear ~~gouping~~ grouping of individual ranking factors.

60.   (Original) The system of claim 59, wherein each individual ranking factor is associated with a coefficient that weights each term.

61.   (Original) The system of claim 60, wherein weight is determined by one or more of the following factors: the source of the data source; the date on which the data source was published; the ratio of the observed frequency of co-occurrence of objects to the expected frequency of co-occurrence of objects; the name of the author associated with the data source; the name of the institution associated with the data source; and the frequency of co-occurrence of objects in different data sources.

62 - 63. (Cancelled)

64.   (Original) The method of claim 61, wherein the data is selected from the group consisting of unstructured text, structured data, a list, a table, a phrase, a paragraph, an abstract, a program, a manual, a text book, a reference book, treatise, a lab notebook, a letter, a memo, an email, a table of contents, index, a magazine, an article, scientific literature, a patent, a patent application, an international application, a webpage, a spreadsheet, a URL, or relational database, and combinations thereof.

65- 67 (cancelled)

68.   (Original) The method of claim 61, wherein the frequency of co-occurrences of objects within the datasource is determined.

69.   (Original) The method of claim 61, wherein the knowledge discovery engine generates a comprehensive network of relationships to identify the implicit relationships.

70 – 108. (Cancelled)

109.   (Original) A computer program embodied on a computer readable medium for accessing domains of information comprising:

a code segment adapted to contain a source of data comprising one or more domains of information;

a code segment adapted to maintain an Object-Relationship Database; and

a code segment adapted to contain a knowledge discovery engine where relationships between two or more objects are searched, grouped, ranked, filtered, and retrieved.

110.   (Original) A computer program embodied on a computer readable medium for creating an Object-Relationship Database (ORD) comprising:

a code segment adapted to compile one or more database objects;

a code segment adapted to group the information in the one or more databases into an object-relationship database;

a code segment adapted to construct a database of lexical variants from one or more databases;

a code segment adapted to scan the object-relationship database with the database of lexical variants to add synonyms; and

a code segment adapted to assign each object a unique numeric ID and storing adirectional relationships by lowest ID first; and

a code segment adapted to check the object-relationship database for errors.

111.   (Original) A data structure comprising a plurality of candidate compounds for new drug therapy generated by a method comprising the steps of:

accessing a source of data comprising one or more domains of information;

compiling the domains of information into an Object-Relationship Database for integrating objects from the one or more domains of information; and

using a knowledge discovery engine where relationships between two or more integrated objects are identified, retrieved, grouped, ranked, filtered and numerically evaluated.

112.   (Original) A data structure comprising a plurality of candidate compounds for evaluation generated by a method comprising the steps of:

obtaining an object-relationship database generated from a data source comprising one or more databases of information; and

processing one or more objects using a knowledge discovery engine to recognize meaningful relationships from a data source comprising the steps of:

identifying one or more co-occurrences of objects from the data source; generating a comprehensive network of relationships; and

storing the shared relationships evaluated by one or more statistical bounded network models,

wherein a query is performed on the shared relationships to identify novel relationships from the comprehensive network of relationships.

113-126. (cancelled)

127.   (Original) A method for numerically assigning importance to each relationship identified using the system of claim 1 comprising the steps of:

identifying one or more co-occurrences of objects within one or more topical sets in a domain of information; and

evaluating the probability that one or more co-occurrences of objects represents a meaningful relationship within one or more topical sets.

128.   (Original) The method of claim 127, wherein the importance is a function of the number of times two objects are co-mentioned within the topical set in the domain of information.

129   (Original) The method of claim 127, wherein the importance is a function of the textual distance between two objects.

130.   (Original) The method of claim 127, wherein the importance is based on an external measure of the topical set, wherein the external measure is selected from the group consisting of importance, relevance, and quality.

131.   (Original) The method of claim 127, wherein the importance includes an evaluation of one or more co-occurrence patterns over time.

132.   (Original) The method of claim 127, wherein a natural language processing engine is used to identify one or more co-occurrences of objects.

133.   (Original) The method of claim 127, wherein contextual information within the topical set is used to assign importance.

134.   (Original) The method of claim 133, wherein contextual information within the topical unit of text is used to assign a nature to the relationship.

135.   (Original) The method of claim 127, wherein importance is veracity.

136.   (Original) A method of finding implicit relationships comprising the steps of

identifying one or more objects directly related to one or more query objects as a set of directly related objects;

identifying one or more objects related to the set of directly related objects as a set of implicitly related objects; and

quantitatively evaluating each implicitly related object to determine a probability that it shares a meaningful relationship with the query object by deriving an importance score and a veracity score.

137.   (Original) The method of claim 136, wherein quantitative evaluation further comprises a probability that a statistically similar relationship could be observed by chance.

138.   (Original) The method of claim 136, wherein a formula (6) according to

$$P(A \leftrightarrow B_1^n) = \sum_1^n 1 - (1 - \frac{K_A}{Nt}) * (1 - \frac{K_{B1}^n}{Nt}) \; . \tag{6}$$

is used.

139-150. (Cancelled)

151.   (Currently amended) A computer program product stored on a computer readable medium comprising program code for executing functions of the system of any of claims 1, or 30, ~~35, 38, 40 or 42, and 124~~.

152. (Cancelled)